Creating components

If you need to use a component that is not built into Easy PV already, read here for full instructions on how to add and manage each type.

Note that Easy PV does not support adding custom **optimisers** or **mounting systems**. To use custom mounting, you will need to select no mounting in the panels task and add the mounting to the financial task, but it will not be included in any calculations or designs Easy PV generates.

- Custom solar panels
- Custom inverters
- Custom battery
- Custom accessories and other components

Custom solar panels

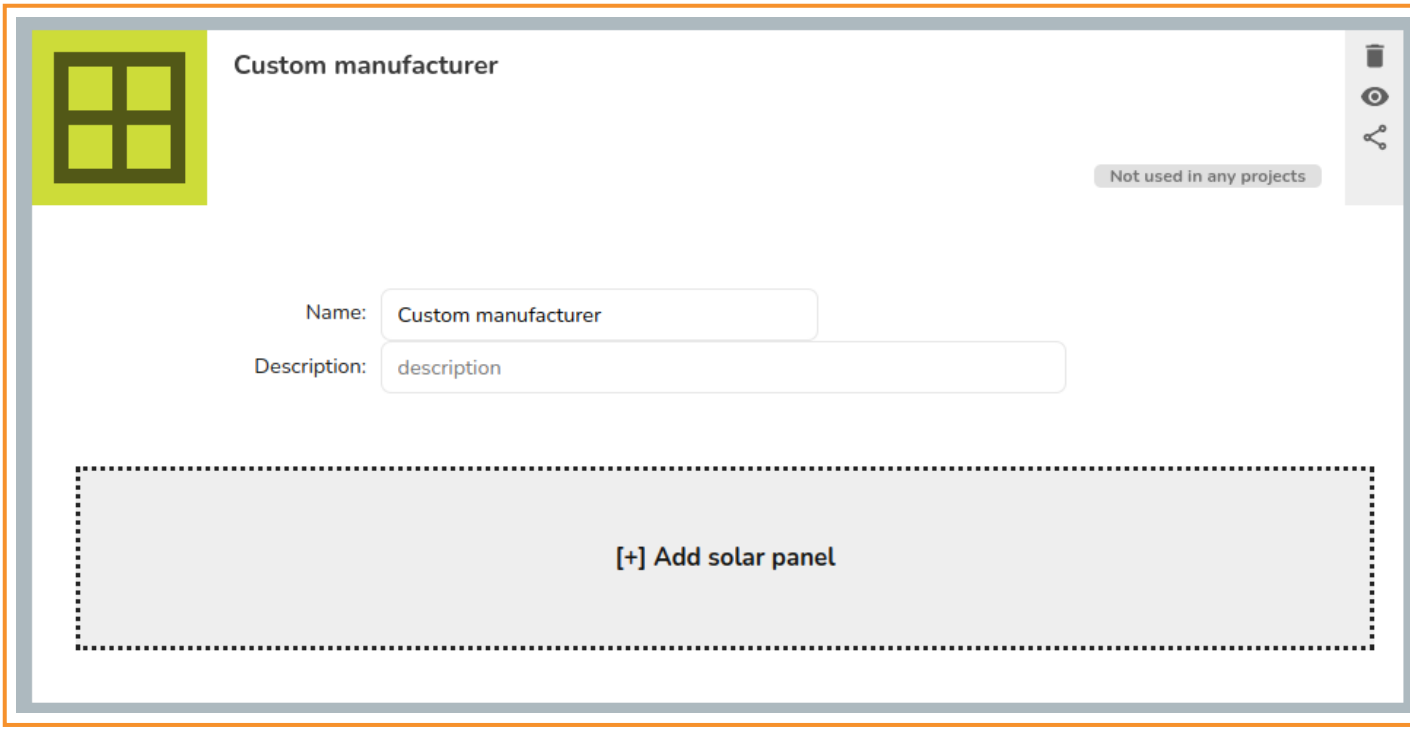
To add a custom panel in Easy PV navigate to **My Components** > **Solar Panels** on the left-side menu or **Components** > **Edit Solar Panels** from the top drop down menu.

You will need the **datasheet** from the manufacturer so Easy PV can appropriately perform calculations for inverter sizing and system output. Below you will find guidance on how the information in the datasheet corresponds to the values Easy PV asks for.

Creating manufacturer

When adding any custom panel in Easy PV you first need to add a custom manufacturer category which allows you to organise your custom components. The components added will be categorised by their manufacturer when it comes to select them in a project.

After inputting the name for the manufacturer, re-open your custom manufacturer and you will see the additional option to add a solar panel.



Inputting information from datasheet

You will then need to input the technical information found in the datasheet for the panel. If your data sheet has two sets of data you should use the values for **standard test conditions (STC)** not the values for Normal Module Operating Temperature (NMOT). This is a list of potential variations for each value required to add a custom panel:

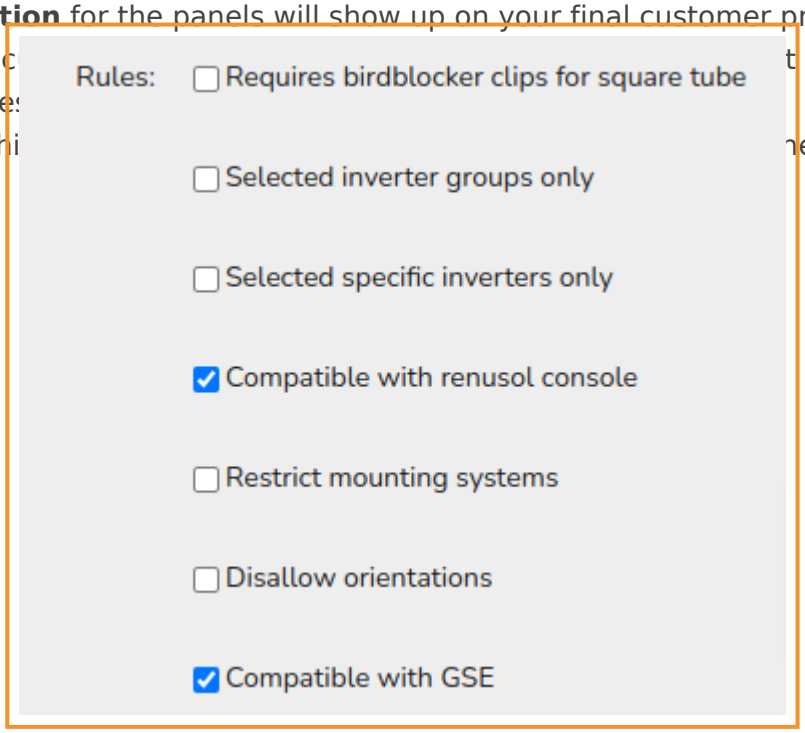
Technical info	Variations
Power: power of the panel at STC in Watts	• Peak Power Watts • Maximum Power Pmax • Power at MPP
I_{sc}: short circuit current of the panel at STC in A	• Short Circuit Current • Short Circuit Current Isc
I_{mpp}: maximum power point current of the panel at STC in A	• Maximum Power Current • Current at MPP
ΔI_{sc}/°C: the temperature coefficient of the panel short circuit current	• Temperature Coefficient of I_{sc}
V_{oc}: open circuit voltage of the panel at STC	• Open Circuit Voltage
V_{mpp}: maximum power point voltage of the panel at STC	• Maximum Power Voltage • Voltage at MPP

ΔV_{oc}/°C: temperature coefficient of the open circuit voltage of the panel	• Temperature Coefficient of V_{oc}

The panel will auto-save once all the required fields are completed. Once you have added a panel successfully, you'll be able to select it in the list of panels when creating a new project in the panels task, listed under your custom manufacturer name.

Additional details and rules

- The **photo** and **description** for the panels will show up on your final customer proposal, to edit the image of the c t image and upload from your file
- There is a set of rules whi e default settings for new panels:



Custom inverters

To add a custom inverter in Easy PV navigate to **My Components** > **Inverters** on the left-side menu or **Components** > **Edit Inverters** from the top drop down menu.

You will need the datasheet from the manufacturer so Easy PV can appropriately perform calculations for inverter and battery sizing and system output. Below you will find guidance on how the information in the datasheet corresponds to the values Easy PV asks for.

Manage your own inverters

Step 1: Add an inverter manufacturer group

To add an inverter, you first need to ensure you have an appropriate inverter manufacturer group set up. Click on the **Add inverter manufacture option** and **input a name** for the inverter manufacturer group and then **press enter on your keyboard or click out of the name field**. Once you've done this the page will update to show the new manufacturer group that you've added.

Next re-open your custom manufacturer group and a**dd a description** and s**elect the type of inverter** you will add to this inverter group. You can set the type as PV inverters, hybrid inverters or AC-coupled inverters. You can only add one type of inverter to each inverter manufacturer group, so if you want to add specific PV inverters (also known as a string inverter) and hybrid inverters you will need a separate group for each.

Step 2: Add a specific inverter model

To add a specific inverter model, first **navigate to the inverter manufacturer group you want to add it to**. Click on the **Add inverter** button and **add the name, description and model number**. These details are displayed in the customer proposal, so add information that is useful and compelling for your customer.

You can also add the following details at this stage:

- ENA system reference - this is used for DNO applications and can be found on the ENA Connect Direct portal.
- Price - this is the price that will be used in the financial task for any projects that include this component

Step 3: Add technical information from the product's datasheet

Finally, add all the technical details for the product. These are needed in order for Easy PV to correctly use the inverter in your projects. You can normally find the data needed on the manufacturers data sheet. If data is missing please contact the manufacturer directly.

Below is a list of definitions and the potential variations for each value on different manufacturer datasheets for each section for PV, hybrid and AC-coupled inverters.

AC output

As well as whether it is a single phase or three phase inverter, other than max power for AC inverters, all inverter types you will need to input the following information:

Technical info	Variations
Max current: maximum AC current in Amps that the inverter can output	• Max output current • Max AC current
Max power: maximum AC power output in Watts of the inverter	• Max recommended PV power • Max AC apparent power • Max apparent AC power • Nominal AC power • Rated output power
Power factor	• This is 1 unless stated otherwise

Solar

For PV and Hybrid inverters you will also need to input information for the solar input:

> After inputting the name, max current and max power the inverter will save and close, remember to re-open it and click ***Add tracker*** (under **Solar** on the right) for each MPPT input the inverter has. If the trackers are the same then you can simply click the copy icon next to the bin icon.

Technical info	Variations
Tracker, V_{mpp} range: the range of V_{mpp} values (maximum power point voltage of the panels at standard test conditions (STC)) compatible with this inverter	• MPP voltage range • Operating voltage range • MPPT range
Tracker, Max V_{oc}: maximum open circuit voltage	• Max DC voltage • Max input voltage • Max DC input power
Max I: maximum current	• Max input current per MPP tracker • Max input current
Max power: The maximum input power in W. This field is optional as not all datasheets provide this information.	• Max. Input Power[W]
Max strings: how many strings can be connected to each MPPT.	• Max input number per MPP tracker • MPPT Tracker / No. of Strings per MPPT Tracker • No. of Strings per MPP Tracker

Battery

For hybrid and AC-coupled inverters you will also need to input battery compatibility information:

Technical info	Variations
Max Charge Rate: the maximum power at which the inverter can charge a battery	• Max charge power
Max Discharge Rate: the maximum power that the inverter can draw from a battery	• Max discharge power • Often the same as the maximum charge rate

Charge Efficiency: the efficiency of the charge process	• Datasheets may have several values; ‘Euro’ efficiency
Discharge Efficiency: the efficiency of the discharge process.	• Battery discharge • If no separate value is given on the datasheet, use the same value as for charge efficiency
Min Battery Capacity	• The capacity of the smallest battery bank that should be used with this inverter
Max Battery Capacity	• The capacity of the largest battery bank that should be used with this inverter
Max Discharge Depth: the maximum depth to which the inverter will discharge an attached battery	• If no figure is given in the datasheet, use 100%
Max Batteries: maximum number of batteries that can be connected	• Leave blank if there is no maximum

Custom battery

To add a custom battery in Easy PV navigate to **My Components** > **Batteries** on the left-side menu or **Components** > **Edit Batteries** from the top drop down menu.

You will need the datasheet from the manufacturer, below you will find guidance on how the information in the datasheet corresponds to the values Easy PV asks for.

> If your custom battery is not showing up in the inverter task, see the 'Rules' section and check the compatibility is correct.

Inputting information from datasheet

Below is a list of definitions and potential variations for each value on different manufacturer data sheets:

Technical info	Variations
Battery Capacity: total battery capacity. Usable capacity may be less if there is a max permitted discharge depth.	• Battery module energy • Battery system capacity
Max Discharge: maximum depth to which the manufacturer recommends that this battery is discharged. Typically 80 or 90%.	• Depth of discharge
Round Trip Efficiency: percentage of electricity recovered from the battery in a charge-discharge cycle. Around 95% is typical for lithium ion batteries.	• Peak round-trip efficiency

The battery will auto-save once all the required fields are completed.

Rules

Notice you can select a variety of rules for the battery. Some key points:

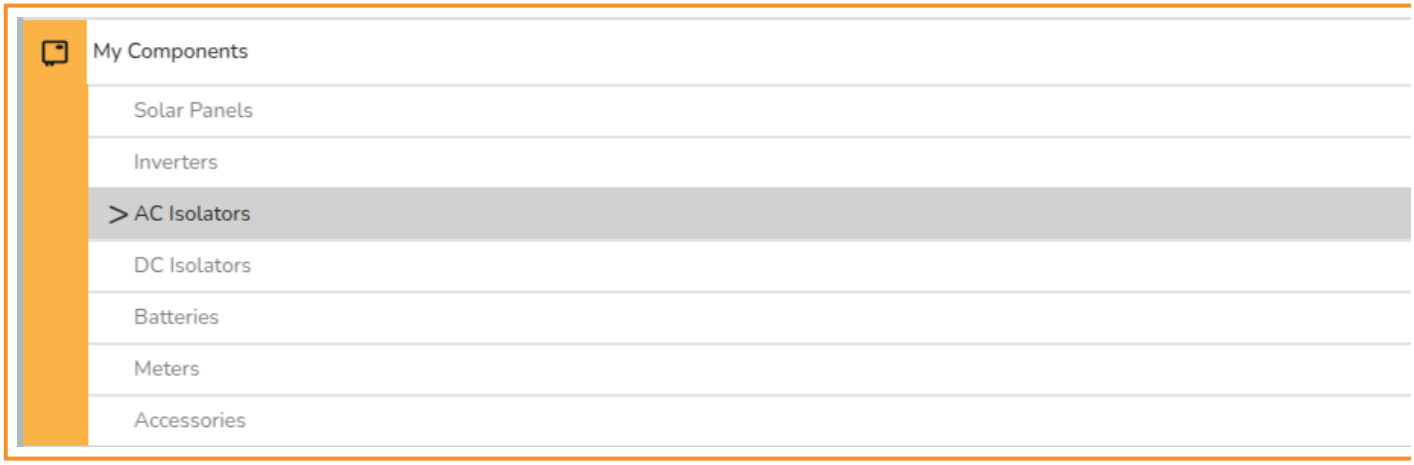
- It is important you select which inverter groups or which specific inverters the battery is compatible with - either by checking 'Selected inverter groups only' or 'Selected specific inverts only' and selecting from the menu which inverters it is compatible with.
- If your hybrid inverter is an **all-in-one system** and you would like it to appear in one line in the quote then make sure to input the price in the **inverter** and then select 'exclude from shopping cart' in the **battery** rules - this means it will only include and list the cost of the inverter and not the batteries. Note that this will mean additional batteries will not

be priced if more than one battery can be included.

Custom accessories and other components

To add a custom accessory in Easy PV navigate to **My Components** > **Accessories** on the left-side menu or **Components** > **Edit Accessories** from the top drop down menu.

In Easy PV you can also add custom AC isolators, DC isolators and meters. Each of these will be available to select in the electrical task, with accessories in the **Extras** section of the electrical task.



These are largely more straight forward than other components in Easy PV. However, when adding a custom accessory, there are many different rules you can select. To determine what each rule changes, select the rule and a window will appear which details what the rule will change about how the component can be used

Rules:

- [ ] Phases
- [ ] Include by default
- [ ] One per inverter
- [ ] Two per inverter
- [ ] One per microinverter string
- [ ] One per optimiser
- [ ] One per specified number of batteries
- [ ] One for every battery after the first
- [ ] Smaller projects only
- [ ] Selected inverter groups only
- [ ] Selected specific inverters only
- [ ] Selected panels only
- [ ] Selected batteries only
- [ ] Selected mounting systems only
- [ ] Selected meters only
- [ ] This is a connector
- [ ] Include with other accessory
- [ ] Add installation cost
- [ ] Control quote display
- [ ] Is Atmoce combiner box